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# EVALUATION OF A GERIATRIC ASSESSMENT UNIT

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## SUMMARY

Psychogeriatric patients are a very vulnerable group among the elderly. A relative large proportion is institutionalized. In addition, many studies point to the heavy burden on the informal carers of psychogeriatric patients, frequently leading to depression. Geriatric expertise in primary care, however, is limited. To complement this expertise, an experiment was conducted involving a geriatric assessment unit in a nursing home. An evaluation study was carried out including 96 patients, 89 of whom were looked after by informal carers. Data were collected from the unit and two 'external controls', both the GP and the informal carer, were interviewed before and 3 months after the intervention. The results show that, in a majority of cases, a new psychiatric or somatic diagnosis could be arrived at. Advice was given on drugs and physiotherapy and the monitoring of behaviour. The impact of the behavioural problems of patients was diminished after the intervention according to the informal carers. Moreover, the sense of competence of the informal carers was enhanced. The health status of the informal carers and the social support they received remained the same. Furthermore, comparison with other datasets supported the assumption of early detection.

KEY WORDS—geriatric assessment, evaluation study, burden.

Geriatric expertise in primary care is rather limited (NRV/vRO, 1992). In diagnosing and managing geriatric patients most primary care providers feel hampered by lack of expertise, as a result of which they are unable to provide appropriate care for these patients with mostly chronic problems characterized by a complex interaction of physical, mental and social problems (Gerritsen *et al.*, 1993). In the Netherlands in recent years many efforts have been made to improve the possibilities for caring for psychogeriatric patients in their own homes. Many nursing homes are providing day treatment facilities for people living in the community (Nies, 1986). In the community mental health care a sector special department for the elderly has been set up (Wolffensperger *et al.*, 1997), nursing homes offer consultation services and new methods are being developed to facilitate care for psychogeriatric patients in their homes (Hadderingh *et al.*, 1991). A recent development in this respect is the geriatric assessment unit. Its primary objective is to provide support and advice to general practitioners or diagnosis, treatment and care. These projects are in line with the Government's substitution policy (Tweede Kamer, 1986–1987). Substitution refers to the reallocation of resources from institutional to primary care.

This article presents the main results of an intervention study conducted in a geriatric assessment unit in 'Nieuw Toutenburg', a psychogeriatric nursing home in Noordbergum in Friesland, a province in the north of the Netherlands. Being located in a nursing home, this unit differs from most other

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comparable units, which are based in general or mental hospitals. The 'Nieuw Toutenburg' unit is an outpatient clinic, whereas the other units are mainly involved in clinical observation.

Only a few comparable units have been set up in other nursing homes. These initiatives have been prompted by the failure, due to structural underfinancing, of policies aimed at implementing geriatric care in general hospitals (Gerritsen and Dekker, 1994). Compared to a general hospital, a nursing home is not the preferred location for a geriatric unit, because equipment is modest and possibilities to consult medical specialists are limited. Furthermore, the nursing staff are not as highly trained as in hospitals. In general hospitals, where until now outpatient and clinical assessment has taken place, the emphasis is on complex somatic problems.

Although it seems a second-best choice of location, a nursing home can provide adequate, low-threshold assessment of a large group of psychogeriatric patients, provided the quality of care is assured. By focusing on patients with dementia and using the outpatient clinic model, the disadvantages of a nursing home as compared with a hospital can be compensated for. The nursing home can provide direct advice to GPs on the management of psychogeriatric patients. This does not lessen the urgent need for specialized (in particular) clinical hospital facilities. In the spring of 1994, there were only 12 clinical geriatric departments in general hospitals, the majority of which had no more than 20 beds available.

The unit's geriatric assessment procedure takes only half a day and includes:

- Auto- and hetero-history-taking (including an interview with the informal carer)
- Physical examination, ECG
- Laboratory tests (Hb, Ht, BSE, ureum kreatinine, glucosis and, when indicated, TSH, vitamin levels or other tests)
- Psychiatric examination
- Psychological tests (Short Portable Mental Status Questionnaire, intelligence test, language and praxis tests)

The unit is staffed by a geriatrician (exceptional in nursing homes), a psychologist and a medical doctor. If required, follow-up is provided by a psychologist who is involved in the geriatric assessment unit. Patients are usually referred to the unit by their general practitioner, who receives a summary of the assessment report as well as practical advice (Gerritsen *et al.*, 1992).

In the following section the research question and hypotheses are introduced. Next the design, population and operationalization are presented. The results are then discussed and the three hypotheses (see below) tested. Finally the conclusions are presented.

## RESEARCH QUESTION AND HYPOTHESES

The following research question is addressed: 'What are the effects of a geriatric assessment unit on the care for psychogeriatric patients and their families?'. The evaluation focuses on the benefits from: (1) diagnostic clarification, (2) therapeutic intervention and (3) advice to GPs and informal carers. In this way the benefits to patients, health care professionals and informal carers are taken into account, i.e. it is assessed whether the patient's behaviour improves and whether both the informal carer and the GP are better able to manage the care for the patients in their homes.

Does the patient's behaviour improve, and are the informal carer and the GP better able to manage the care at home? To answer these questions, the evaluation covers both the activities in the outpatient clinic (diagnosis, treatment and recommendations) and the period immediately following the assessment during which the recommendations are implemented (except for admission, which took several months). This means that in the study the concept 'outpatient clinic' is rather broadly defined.

Three hypotheses were tested to evaluate the effects of the assessment unit. The first hypothesis addressed the primary objective of the outpatient clinic, i.e. the improvement of geriatric diagnosis and therapy: (1) The geriatric assessment unit contributes to assessment and treatment.

Data on new diagnoses and advice by the unit were used to evaluate the hypothesis. In addition, the patient's health and behaviour as evaluated by the informal carer and the general practitioners and a direct evaluation by the GP were studied.

The two other hypotheses address the two main problems in home care for psychogeriatric patients. The second hypothesis concerns the burden of informal carers. Psychogeriatric patients can only be cared for in their homes when the informal carer

is able to cope with the burden (Peute, 1988). In most cases, however, the informal carers experience a severe burden, sometimes even leading to depression (Cohen and Eisdorfer, 1988). The informal carers' burden might be alleviated when, as a result of advice and treatment provided by the outpatient clinic, the patient's behavioural problems diminish or the informal carers are better informed. The second hypothesis is: (2) The advice and intervention of the geriatric assessment unit are a support to the informal carer.

The developments in the patients' health status, and the burden of the informal carers were studied.

Most specialized geriatric services in The Netherlands express concern about patients being referred to them at a rather late stage (Hadderingh *et al.*, 1991), when the informal care providers are no longer able to cope. The only interventions in those cases are admission to institutional care. With early detection, other, more therapeutic interventions might be feasible, thus enabling continued home care. The third hypothesis is related to early detection: (3) The geriatric assessment unit contributes to an early detection of psychogeriatric disorders.

This hypothesis was explored through evaluations of the unit's staff and by comparing the characteristics of the patients of the unit with those of other populations.

## MATERIALS AND METHODS

An internal evaluation was carried out by the geriatric assessment unit, with two external controls, including interviews with the informal carers and the GP immediately preceding and 3-months after the intervention. Unlike in other large-scale studies (Rubenstein *et al.*, 1984), practical and ethical considerations resulted in a design without a control group. It is virtually impossible and rather time-consuming to match patients on relevant characteristics. Moreover, GPs, the main referents, are likely to object strongly when their patient is assigned to the control group (waiting list) with the possibility of being excluded from the project altogether. Because the project is primarily intended as a direct service to general practitioners, changing the structure of the project for research reasons could not be considered. Most importantly, however, in view of the difficult situation facing patients and their families, any delay of the intervention would be totally unacceptable. The absence of a control group imposes some limitations on the study. Nevertheless, any systematic, 'real' effects in the control group, for example with respect to the behaviour of clients, are highly unlikely. Research effects (learning, giving socially desirable answers), however, might have an impact. By using validated and reliable instruments (see below) and skilled and experienced interviewers, these effects were minimized. To control for these research effects, the direction of change in the respondents' answers was taken into account. Detection of a similar trend in all or most variables was considered as an indication that socially desirable responses were given. The results, however, presented a varied picture, and consequently it was assumed that interference from research effects was absent. Finally, the results were controlled by analysing subgroups. All general analyses were repeated for groups of patients to be admitted to institutional care and groups of patients who were able to be cared for in their homes (with or without assistance). As the same effects were found in all groups, it was concluded that the contribution of the outpatient clinic was not associated with certain groups of patients, and that therefore the results were systematic and not due to chance.

Ninety-six patients were enrolled in the study, 91 of whom had an informal carer. Eighty-nine informal carers participated in both measurements. With one exception (one GP, three referrals), all GPs ($n$ = 70 with 93 referrals) cooperated. Table 1 presents information on the patients and their informal carers.

The average age of the patients was almost 76 years. Half of the population were men, which is surprising since as a rule only a third of most elderly patient populations are men. Half of the patients were married. The majority of the remaining population were widowed, with only a few patients being single (never married) or divorced.

Three-quarters of the informal carers were women; the average age was 61 years. Most of the informal carers were married. In almost half of the cases the patient was looked after by the partner. Another relatively large group of carers are the daughters of patients. Half of the informal carers are living with the patient, the other half live with their own families. Table 2 summarizes information on the instruments used to assess the behavioural problems and ADL (by the GP and the informal carers) and to assess the informal carers' health and burden.

To assess the behavioural problems, a checklist developed by Wolffensperger *et al.* (1987) and Ger-

Table 1. Characteristics of patients of the geriatric assessment unit and their families

| | The elderly ($N = 96$) | Informal carers ($N = 91$)* |
|---|---|---|
| Mean age | 75.8 | 61.2 |
| Gender | | |
| Men | 48% | 26% |
| Women | 52% | 74% |
| Marital status | | |
| Not married | 9 | 6 |
| Married | 46 | 77 |
| Divorced | 3 | 3 |
| Widow(er) | 38 | 5 |
| Relationship | | |
| Partner | | 44 |
| Daughter | | 24 |
| Son | | 9 |
| In-laws | | 5 |
| Others | | 9 |
| Living with patient | | 42 |
| Living with family | | 49 |

* First measurement.

ritsen *et al.* (1992) was used. The instrument consists of two subscales with four items measuring memory and orientation problems and deviant behaviour (anger, reluctance, suspicion and being difficult to get on with). A hierarchical, polychotomous index developed by Kempen (1990) was used to measure ADL. All the instruments address the patient's health and behaviour. The assessment took place in interviews with the GP and the informal carer.

The burden and health of the informal carer were operationalized by means of an instrument to assess sense of competence (Vernooij-Dassen and Persoon, 1990), an instrument measuring perceived social support (van Linschoten, 1989) and Zung's (1965) self-rating depression scale.

Vernooij-Dassen and Persoon developed their instrument by improving on the burden interview by Zarit and Zarit (1984), which was characterized by modest measuring qualities. This instrument, sense of competence 1, is based on the definition of sense of competence as the way informal carers perceive their own abilities to look after the elderly person. A second instrument, sense of competence II, was developed by the authors. It is a shorter and hierarchical version including three strong subscales, i.e. 'private life', evaluation of the 'relationship with the patient' and 'self-efficacy'. With the instrument for assessing social support a distinction could be made between everyday and problem-oriented social support. Factor analysis yielded satisfactory results for all the instruments, with reliability varying from sufficient to high, with the exception of the subscale for problem-oriented social support. The latter subscale was nevertheless not excluded from the study because of its reliability in the second interview with the informal carer (alpha = 0.76) and its good measurement qualities in other studies (van Linschoten, 1989).

## CONTRIBUTION TO ASSESSMENT AND TREATMENT

In this section the first hypothesis related to the contribution of the geriatric assessment unit to assessment and treatment was evaluated using data collected in the outpatient clinic on diagnoses and advice and data from the general practitioner and the informal carer (external controls).

### *Internal evaluation: diagnoses and advice*

The diagnoses made at the unit are presented in Table 3. A distinction was made between diagnoses arrived at before the assessment by the unit and new diagnoses made by the unit.

The largest groups of mental disorders were Alzheimer's disease, the organic psychosyndrome and amnestic disorders. The organic psychosyndrome refers to relatively stable cognitive disorders caused by, for example, a CVA or Parkinson's disease. Amnestic disorders include memory disorders without other cognitive disorders. Often there is an underlying organic disorder. Less frequently occurring disorders were neurosis, multi-infarct dementia (MID) and mixed Alzheimer's disease and MID. Depression was only diagnosed in one patient. This is partly due to chance (depression was diagnosed slightly more frequently during the years before the experiment) and to a strict adherence to the DSM-III criteria (APA, 1987). Of the newly diagnosed psychiatric disorders, Alzheimer's disease, amnestic disorder and the organic psychosyndrome were found quite frequently.

Physical disorders that were diagnosed in a considerable number of cases included neurological disorders and circulation and mobility problems. More rare disorders were problems with visus, hearing, incontinence and diabetes mellitus. New

Table 2. Variables: summary of main characteristics in first interview

| | *N* of items | Alpha | Mean | SD |
|---|---|---|---|---|
| *General practitioner* | | | | |
| Characteristics of the patients | | | | |
| Behaviour problems | 18 | 0.86 | 39.7 | 8.3 |
| Memory and orientation | 4 | 0.77 | 10.1 | 3.3 |
| Deviant behaviour | 4 | 0.71 | 9.1 | 3.3 |
| *Informal carer* | | | | |
| Characteristics of the patients | | | | |
| Behaviour problems | 18 | 0.93 | 39.9 | 9.9 |
| Memory and orientation | 4 | 0.76 | 10.1 | 3.3 |
| Deviant behaviour | 4 | 0.81 | 9.3 | 3.6 |
| ADL | 11 | 0.87 | 16.4 | 5.2 |
| Characteristics of the informal carer | | | | |
| Sense of competence 1 | 27 | 0.88 | 21.3 | 5.1 |
| Sense of competence 2 | 18 | 0.87 | 13.9 | 4.0 |
| Private life | 7 | 0.81 | 4.6 | 3.5 |
| Relationship | 5 | 0.72 | 4.1 | 1.3 |
| Self-efficacy | 6 | 0.76 | 5.0 | 1.5 |
| Social support | 13 | 0.73 | 30.1 | 10.7 |
| Everyday support | 5 | 0.70 | 14.3 | 4.2 |
| Problem-oriented | 8 | 0.60 | 17.8 | 7.9 |
| Depression | 20 | 0.74 | 35.8 | 7.7 |

diagnoses particularly involved neurological disorders and circulation problems.

When social problems were diagnosed, it appeared that almost two-thirds of the population were dependent. In half the population the informal care is overburdened according to the outpatient clinic. In one third of the cases relationship problems, loneliness and neglect were found. Only a few instances of new social problems were detected by the outpatient clinic.

Based on the mental, physical and social examinations and diagnoses, the geriatric assessment unit made recommendations to the general practitioner and the families of the patients. An analysis of the advice given reveals three main patterns: monitoring ($N = 41$), follow-up ($N = 26$) and admission to institutional care ($N = 28$). Monitoring involves detailed advice on how to cope with the patient in everyday life. The follow-up is provided by a psychologist who support the care at home. Occasionally admission to an old people's home or nursing home seems the only solution when all other resources have been exhausted. These three advice patterns are almost mutually exclusive. They are supplemented by advice on drug-taking (often it is advised to stop using certain drugs) and advice to consult other professionals. The recommendations were put into effect immediately following the assessment procedure, with the exception of admission. Even if immediate admission to institutional care was recommended, it took rather a long time before the patient could actually be admitted. During the study period no admissions were effected. Consequently, no bias was introduced in the study due to a relatively low burden in this group.

Some examples will illustrate the nature of the recommendations. In one case the informal carer was advised to change his behaviour by remaining quiet and trying to calm the patient down. A situation in which social isolation seemed a real threat could be resolved by involving the children in the care process. The children were informed that their mother was not suffering from severe strain but that her panic and fear of failure were caused by memory problems. It was explained to them that no purpose was served by confronting the patient with her defects.

In a second, more serious case medication was recommended together with follow-up by the psy-

Table 3. Diagnoses geriatric assessment unit ($N = 96$)

| | Already known | New diagnosis | Total |
|---|---|---|---|
| *Mental disorders* | | | |
| Amnestic disorder | 1 | 12 | 13 |
| Alzheimer's disease | 25 | 8 | 33 |
| Multi-infarct dementia | 1 | 5 | 6 |
| Alzheimer/MID | 5 | 2 | 7 |
| Organic psychosyndrome | 9 | 9 | 18 |
| Depression | 1 | — | 1 |
| Neurosis/personality disorders | 8 | 1 | 9 |
| Others | 3 | 1 | 4 |
| None | — | — | 7 |
| *Physical disorders* | | | |
| Neurological disorders | 16 | 19 | 35 |
| Circulation | 30 | 20 | 50 |
| Respiration | 8 | 1 | 9 |
| Mobility | 18 | 5 | 23 |
| Digestion | 2 | 4 | 6 |
| Incontinence | 7 | 5 | 12 |
| Visus | 10 | 7 | 17 |
| Hearing | 13 | 2 | 15 |
| Diabetes mellitus | 6 | 4 | 10 |
| Drugs intoxication | 1 | 5 | 6 |
| *Social problems* | | | |
| Relationship problems | 27 | 3 | 30 |
| Loneliness | 30 | 1 | 31 |
| Burden social network | 47 | — | 47 |
| Neglect | 20 | 4 | 24 |
| Dependence | 64 | — | 64 |
| Mourning problems | 1 | 1 | 2 |
| Not possible to maintain in old people's home | 6 | — | 6 |
| Others | 4 | 1 | 5 |
| None | — | — | 10 |

chologist. The psychologist was to focus on the aggression-inducing behaviour of the informal carer. When this fails to produce the desired results, admission will be inevitable.

The advice was targeted at specific groups within the population of the outpatient clinic. Table 4 shows a profile of the three main groups. Each subgroup (second column) was compared with the remainder of the population (first column) with respect to the patient's behaviour and the sense of competence of the carer. Only significant differences are presented.

The subgroup of patients for whom monitoring was advised in characterized by a relatively low number of behavioural problems. The informal carers in this group are in a reasonably favourable situation. They score relatively low on depression, while their sense of competence is high.

The subgroup for whom follow-up was recommended does not differ greatly from the average findings for the remainder of the population. Only the sense of competence of the informal carer is unfavourable compared with that of the other informal carers.

The situation in the subgroup of patients requiring admission compares unfavourably with that in the other groups. The patients have more behavioural problems. Analysis of the subscales revealed in particular more memory and orientation problems (indicating dementia). Also, ADL problems are more severe and the carers' sense of competence is comparatively low.

Table 4. Profiles of subgroups by advice: behaviour and physical health and sense of competence of informal carers

| | No | Yes | *T* |
|---|---|---|---|
| *Monitoring* | | | |
| Behaviour problems (IC) | 42.9 (48) | 36.2 (39) | 3.45** |
| Depression | 39.5 (47) | 34.8 (38) | 2.71** |
| Sense of competence 1 | 19.7 (47) | 23.2 (37) | −3.29** |
| Sense of competence 2 | 12.6 (47) | 15.5 (37) | −3.58** |
| *Follow-up* | | | |
| Sense of competence 2 | 14.5 (59) | 12.4 (25) | 2.23* |
| *Admission* | | | |
| Behaviour problems (IC) | 38.0 (66) | 45.1 (24) | −3.34** |
| ADL (IC) | 15.2 (65) | 20.1 (28) | −3.21** |
| Sense of competence 1 | 21.9 (57) | 19.2 (20) | 2.20* |
| Sense of competence 2 | 14.4 (64) | 12.1 (21) | 2.29* |

* $p < 0.05$; ** $p < 0.01$.

*External evaluation: assessment by the GP and the carers*

Hypothesis 1 can also be evaluated by means of the external controls: a direct evaluation by the general practitioner and data on health and behaviour of the patient from the interviews with the GP and the informal carer.

In more than half of the cases the geriatric assessment unit made a (very) substantial contribution to the clarification of the problems, according to the general practitioner ($N = 52$). Only in 10 cases did the GP express dissatisfaction in this respect ('not at all'). Any direct effects on the condition of the patient and the informal carer, however, were on average only modest. In 16 cases the health status of the patient improved or remained stable; in 23 cases the competence of the informal care improved, according to the GP. The geriatric assessment unit nevertheless had a large impact on the GP's competence. In 63 (of the 96) cases the GP felt better able to provide care for the patients in their home. On average, the advice was considered quite practical (79 cases).

Another source of 'external evaluation' was the data on behaviour and physical health (Table 5). Physical health was operationalized as ADL and physical complaints (one item ranging from 1 to 4).

A comparison was made between two assessments by the GP and the informal carer of the patient's behaviour problems and physical health, i.e. immediately preceding and 3 months after the intervention by the geriatric assessment unit.

Table 5. Changes in behaviour and physical health

| | Mean *N* | Mean *N* | *T* |
|---|---|---|---|
| *Informal carer 1–informal carer 2* | | | |
| Behaviour problems | 39.8 (89) | 37.3 (89) | 2.89** |
| Memory and orientation | 10.1 (89) | 10.1 (89) | −0.33 |
| Deviant behaviour | 9.3 (89) | 8.6 (89) | 2.40* |
| ADL | 16.3 (75) | 17.1 (75) | −1.92 |
| Physical complaints | 2.2 (89) | 1.9 (89) | 2.85** |
| *GP1–GP2* | | | |
| Behaviour problems | 39.8 (92) | 40.1 (92) | −0.32 |
| Memory and orientation | 10.2 (92) | 10.5 (92) | −1.02 |
| Deviant behaviour | 9.2 (92) | 9.3 (92) | −0.30 |
| Physical complaints | 2.1 (92) | 1.8 (92) | 2.09* |

*$p < 0.05$; **$p < 0.01$.

The informal carer perceived fewer behaviour problems after the intervention than before. In particular, deviant behaviour was reduced. Memory and orientation remained the same. ADL problems were increasing (NS), but physical complaints were reduced after the intervention. The GP did not confirm this view except for physical complaints. General practitioners did not perceive (any) change in the patients' behaviour. From the interviews, however, it appeared that the GP did not or only rarely visit the patient between the intervention and the follow-up interview 3 months later. Therefore,

Table 6. Changes in burden informal carers

| | Informal carer 1 Mean *N* | Informal carer 2 Mean *N* | *T* |
|---|---|---|---|
| Sense of competence 1 | 21.5 (75) | 22.6 (75) | −2.99** |
| Sense of competence 2 | 14.1 (75) | 14.7 (75) | −2.00* |
| Private life | 4.9 (76) | 5.1 (76) | −1.14 |
| Relationship | 4.1 (76) | 4.1 (76) | 0.0 |
| Self-efficacy | 5.0 (75) | 5.4 (75) | −2.65* |
| Social support | 29.9 (88) | 30.7 (88) | −0.40 |
| Everyday support | 14.3 (88) | 14.4 (88) | −0.05 |
| Problem-oriented | 17.7 (88) | 18.5 (88) | −0.53 |
| Depression | 37.5 (82) | 37.6 (82) | −0.20 |

* $p$, 0.05; ** $p < 0.01$.

the informal carer would seem a more reliable source of information in this respect. GPs visited their patients only infrequently, which appears to contrast with their perception that they are better able to provide care to the patients in their homes. This paradox might be explained by assuming that the GPs' perception resulted from receiving fewer urgent phone calls and complaints from the informal carers.

When the different advice subgroups (monitoring, follow-up and admission) were analysed, a greater reduction in behavioural problems was found in the admission group than in other groups. Table 4 shows a relatively high level of behavioural problems in the admission group compared with the other patients.

## CONTRIBUTIONS WITH RESPECT TO INFORMAL CARE

The second hypothesis, related to the contributions of the geriatric assessment unit to the informal care, was evaluated using data collected in the interviews with the informal carer. Attention was paid to potential changes in the sense of competence, perceived social support and depression (Table 6).

Between the two measurements there was a significant increase in the competence of the informal carer both when measured with the original and with the modified version of the instrument. Further analysis of subscales showed that changes occurred especially with regard to self-efficacy. The informal carers indicated that there was somewhat more room for a private life. Their evaluation of the relationship with the patient remained unchanged.

Perceived social support, however, did not change over time. The same applies for the two subscales. Data on the health of the informal carer showed no change over time.

An analysis of changes in the advice subgroups showed that competence increased less in the monitoring groups as compared with the other groups. This might be attributed to a 'ceiling effect'. The sense of competence of the informal carers in this group was comparatively high compared with that in the two other groups. Maybe improvement is more difficult to achieve when the initial level of sense of competence is already quite high.

## EARLY DETECTION OF PSYCHOGERIATRIC DISORDERS

This section is devoted to the third hypothesis and deals with the contribution of the geriatric assessment unit to early detection. Half of the patient population presented an early stage of the disease process (often dementia) according to the staff of the geriatric assessment unit. Thirty-two patients, however, were at an advanced stage and 11 even at a very advanced stage of the process. In five patients no 'disease process' was diagnosed. Almost a third of the cases involved an early referral by the GP, for another third of the population the referral was 'in time', while for the remaining third referral was considered to be too late.

A more 'objective' evaluation was performed by comparing the population of the geriatric assessment unit with other populations (Table 7), i.e. a large sample of psychogeriatric patients referred to the community mental health care for the elderly (CMHCE) (Wolffensperger *et al.*, 1987), a more recent but smaller sample of CMHCE patients including also their informal carers (Hadderingh

Table 7. Early detection of psychogeriatric disorders: a comparison with other populations

| | 1 Outpatient clinic ($N=96$) | 2 CMHCE 84–86 ($N=1639$) | 3 CMHCE 90–91 ($N=42$) | 4 Intervention study Nijmegen ($N=141$) |
|---|---|---|---|---|
| Mean age | 75.8 | 79.1 | 79.9 | 78.4 |
| Memory and orientation | 2.7 | 2.5 | 3.1 | — |
| Competence informal carer | 21.3 | — | 18.0 | 17.9 |
| Age | 1–2 $t=-3.88$**; 1–3 $t=-2.39$;* 1–4 $t=-2.15$* | | | |
| Memory and orientation | 1–2 NS; 1–3 NS | | | |
| Competence | 1–3 $t=3.44$;** 1–4 $t=5.07$** | | | |

* $p<0.05$; ** $p<0.01$.

*et al.*, 1991) and a sample of patients with dementia and their informal carers who were selected for an intervention study (to increase competence of informal carers) (Vernooij-Dassen, 1993).

The mean age of the patient population in the study was significantly lower than in all the other populations. The sum score on memory and orientation problems (items recoded as dichotomies to enable comparison) was almost equal to the 84–86 CMHCE study but lower than the 91 CMHCE study (NS). The competence of the informal carer was higher than in the 91 CMHCE study and in the intervention study of Vernooij-Dassen (1993).

## CONCLUSIONS

It can be concluded that in particular hypotheses 1 and 3 were strongly supported. Some support, although weaker, was found for hypothesis 2.

The geriatric assessment unit did make a contribution to the assessment and treatment of the patients' disorders. New mental and physical disorders were diagnosed. The advice given included recommendations for monitoring, in some cases follow-up was provided, drugs prescriptions were changed and other professionals were asked for further assistance. The advice was carefully targeted at the different subgroups of patients and their carers. In this way almost mutually exclusive groups could be distinguished by the type of advice they received, ie monitoring, follow-up or admission. Monitoring was advised in relatively mild cases whereas follow-up and in particular admission were recommended in more serious cases.

The value of the intervention of the assessment unit is reflected by a positive evaluation by the general practitioners. They considered the advice practical, and as a result of the intervention they felt that their psychogeriatric competence had increased. The informal carers reported a decrease in behavioural problems, in particular with respect to deviant behaviour.

The geriatric assessment unit contributed to early detection. A large proportion of the patients were referred to the unit at an early stage of disease. Comparison with other populations shows that the average age of the patients referred to the unit is significantly lower than in comparable populations, while the competence of their informal carers is significantly higher. The geriatric assessment unit also made a moderate contribution to the informal care. The competence of the informal carers improved slightly, in particular as regards their self-efficacy. With respect to health and social support, however, hardly any evidence of change could be detected.

## DISCUSSION

It seems that a geriatric assessment unit in a nursing home, with easy accessibility for general practitioners, can make a valuable contribution to a geriatric circuit of specialized services and home care for psychogeriatric patients (Sipsma, 1986). General practitioners tend to look more closely at their own client population when such a facility is available. As a result patients are referred earlier and interventions may prevent further escalation. These beneficial effects, however, are dependent on adequate follow-up after the intervention to guarantee that advice is complied with in an adequate way and to support those providing home care. Important services in this respect are the district nursing and the home help service. These services,

however, lack sufficient psychogeriatric expertise. This may in part explain why they were not involved during the period following the assessment. Only in one case was the advice given to apply for home care. Home care services, however, are important because they can provide more continuous support. Improvement of their expertise and involvement of geriatric professionals (nursing homes, community mental health care) is therefore essential.

A focus of attention in the home care for psychogeriatric patients and their families should also be the well-being of informal carers and their ability to cope with deviant behaviour. In our study, deviant behaviour of patients and depression of informal carers were particularly predictive of a low sense of competence of informal carers (Gerritsen *et al.*, 1992). In a multiple regression analysis we could explain 48% of the variance. Significant and strong $\beta$ values were found for deviant behaviour ($\beta = -0.41$) and depression ($\beta = -0.32$). The first variable changed following the assessment (while the latter did not). This underlines the potential of an outpatient service for influencing burden by modifying deviant behaviour of patients. An intensive follow-up seems a prerequisite in this respect.

Therefore, during the follow-up intervention the mental health status of the informal carers should be assessed and instructions should be given on how to cope with deviant behaviour still persisting after the visit to the geriatric assessment unit. Adequate utilization of the diagnostic and therapeutic results of the geriatric assessment unit requires: follow-up after assessment, good cooperation of (general) primary care services and geriatric professionals, and sufficient attention and support for informal carers.

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